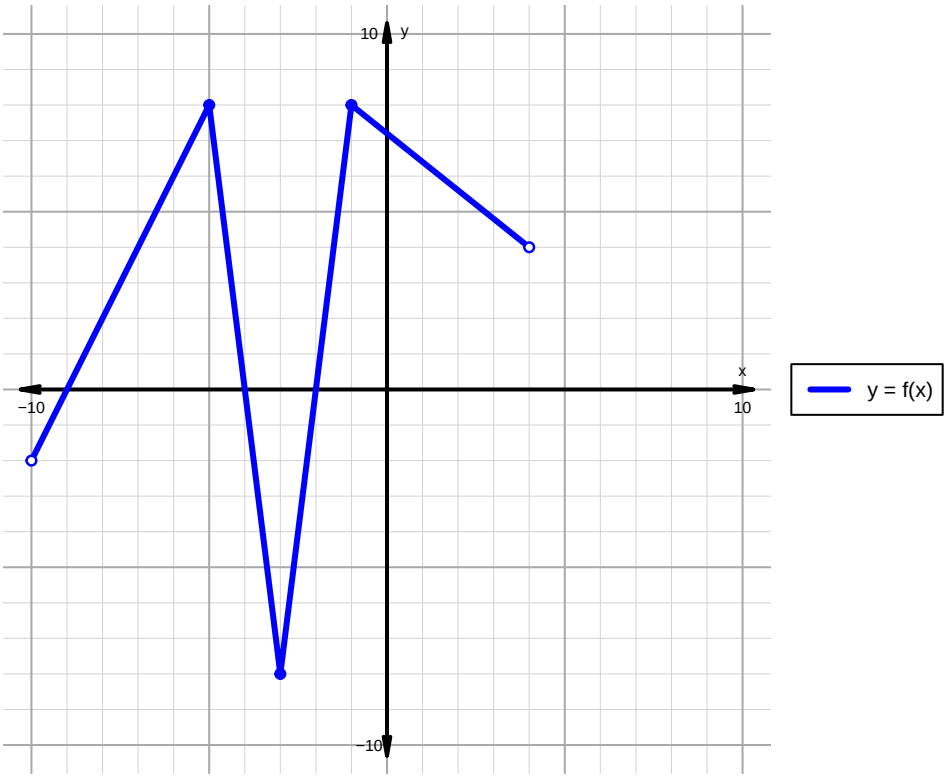
Name: Date:

Intervals, Transformations, and Slope Solution (version 116)

1. The function f is graphed below.



Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-9,-4) \cup (-2,4)$
Negative	$(-10,-9) \cup (-4,-2)$
Increasing	$(-10,-5) \cup (-3,-1)$
Decreasing	$(-5,-3) \cup (-1,4)$
Domain	$(-10,4)$
Range	$(-8,8)$

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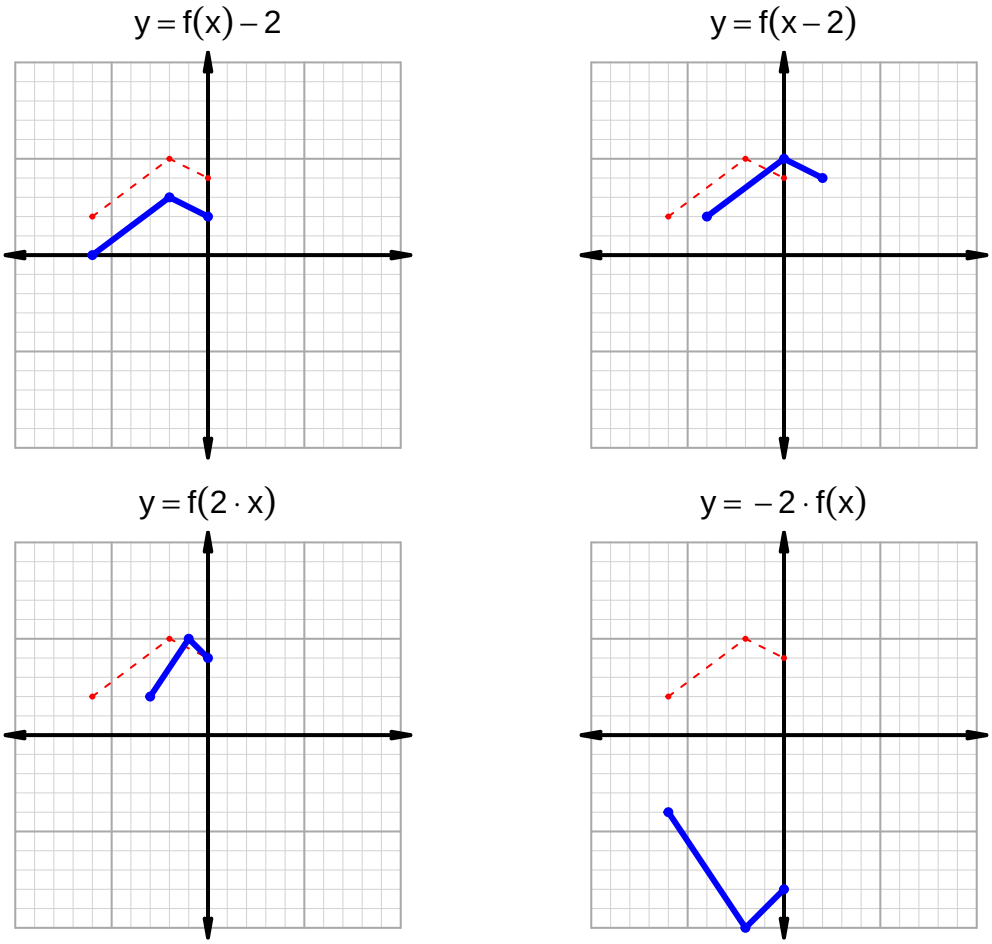
2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.



3. Let function g be defined by the table below. Use the formula $\frac{g(x_2)-g(x_1)}{x_2-x_1}$ to find the average rate of change between $x_1 = 49$ and $x_2 = 81$. Express your answer as a reduced fraction.

x	$g(x)$
49	91
55	49
81	55
91	81

$\frac{f(81)-f(49)}{81-49} = \frac{55-91}{81-49} = \frac{-36}{32}$

The greatest common factor of -36 and 32 is 4. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{-9}{8}$$